

**OPTIMIZATION DESIGN AND EVALUATION OF RANITIDINE FLOATING  
TABLET USING COMBINATION OF HPMC AND CARBOPOL POLYMERS  
*SIMPLEX LATTICE DESIGN***

**Yulita Sandriani**

**15613056**

**ABSTRACT**

Ranitidine is a histamine H<sub>2</sub> receptor inhibitor in parietal cells that can inhibit stomach acid production. Ranitidine is commonly used for active duodenal disease, gastroesophageal reflux and diseases involving high gastric acid secretion. The purpose of this study is to make ranitidine in the form of floating tablet preparations so as to increase drug release time and achieve better bioavailability. This study aims to optimize the design and evaluation of floating tablets with a combination of HPMC and carbopol using the Simplex Lattice Design method. Systematic work in this study is determining the ratio of ranitidine floating tablet components; floating tablet preparation formula; FTIR test; dissolution test; floating lag time test; test duration of buoyancy; size uniformity test; weight uniformity test; hardness test; friability test; and analysis of result data. The result of optimal formula ranitidine floating tablet with HPMC and carbopol components is 130 mg: 32.5 mg. The resulting characterization response got a floating lag time of 8.21 seconds and dissolution (T<sub>50</sub>%) 3.29 hours and the duration of buoyance test results > 7 hours. The formula has a hardness value of  $8.21 \pm 0.23$ , fragility of  $0.37 \pm 0.06$ , uniformity of size based on the diameter and thickness of each is  $4.48 \pm 0.01$  and the results of the uniformity of weights with a value of 4 , 68 which can be stated uniformly. The result of weight uniformity is stated uniformly. It was concluded that Simplex Lattice Design can be used to determine the optimal formula ranitidin floating tablets with characterization results that in criteria.

**Keywords:** ranitidin, *floating tablet*, *Simplex Lattice Design* .